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The power of anticipated feedback: Effects on students' achievement goals and achievement emotions*



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ABSTRACT

In an experimental study (N=153 high school students), we tested a theoretical model positing that anticipated achievement feedback influences achievement goals and achievement emotions, and that achievement goals mediate the link between anticipated feedback and emotions. Participants were informed that they would receive self-referential feedback, normative feedback, or no feedback for their performance on a test. Subsequently, achievement goals and discrete achievement emotions regarding the test were assessed. Self-referential feedback had a positive influence on mastery goal adoption, whereas normative feedback had a positive influence on performance-approach and performance-avoidance goal adoption. Furthermore, feedback condition and achievement goals predicted test-related emotions (i.e., enjoyment, hope, pride, relief, anger, anxiety, hopelessness, and shame). Achievement goals were documented as significant mediators of the influence of feedback instruction on emotions, and mediation was observed for seven of the eight focal emotions. Implications for educational research and practice are discussed.

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1. Introduction

Affective variables can profoundly influence students' learning and achievement (Christenson, Reschly, & Wylie, 2012; Pekrun & Linnenbrink-Garcia, in press; Zeidner, 1998). Two groups of affective variables that are deemed to be critically important are achievement goals and achievement emotions. During the past dozen years, researchers have moved beyond traditional research perspectives addressing these two constructs in isolation and have started to examine their combined effects on achievement-relevant outcomes (Linnenbrink & Pintrich, 2002; Pekrun, Elliot, & Maier, 2009). The functional relevance of achievement goals and emotions suggests that researchers should attend to their joint antecedents as well, in order to provide educators with information about educational practices fostering students' engagement.

However, as yet the joint antecedents of students' achievement goals and emotions have generally been neglected.

In the present research, we seek to extend the existing research by considering achievement goals and emotions in the context of one powerful contextual factor shaping students' engagement, namely, anticipated achievement feedback. Goals and emotions can be affected by numerous contextual factors including classroom goal structures, the quality of classroom instruction, autonomy support provided by teachers, and the didactic approaches used (Murayama & Elliot, 2009; Pekrun, 2006; Zeidner, 1998). Among these variables, the ways in which students' achievement is evaluated is likely one of the most salient factors (Ames, 1992; Hattie & Timperley, 2007). A few studies have examined the effects of anticipated feedback on students' achievement goals; in contrast, the impact of anticipated feedback on achievement emotions has been neglected, as has the joint influence of anticipated feedback and goals on emotions.

Based on work by Pekrun, Elliot, and Maier (2006, 2009), we developed a theoretical model linking anticipated feedback to subsequent achievement goals and emotions. Feedback is conceived as information about a student's performance on a task or a test, and anticipated feedback as a student's expectations about the kind of feedback they will receive. More specifically, the model

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addresses anticipated self-referential feedback based on students' improvement of performance over time, and anticipated normative feedback based on comparing a student's performance with the performance of other students. It is posited that these kinds of anticipated feedback influence students' achievement goals and subsequent achievement emotions, and that achievement goals mediate the impact of anticipated feedback on achievement emotions. These hypotheses were examined in an experimental study with high school students.

In the following sections, we first provide an overview of extant studies on the links between anticipated feedback, achievement goals, and achievement emotions. We then outline our theoretical model on these links and provide a summary of the hypotheses examined in the present study.

2. Prior research

2.1. Achievement goals and emotions

There is preliminary evidence suggesting that achievement goals influence students' emotions (Huang, 2011). However, the majority of the studies conducted to date have used a dichotomous model of achievement goals that distinguishes between mastery and performance goals only. Similarly, most studies have used a two-dimensional conception of affective states and employed summary measures of positive and negative affect that do not account for diverse emotional experience (Pekrun et al., 2006)

Mastery goals have been consistently found to relate to positive affect in students from upper elementary school to university (Huang, 2011). Furthermore, mastery goals related positively to various discrete positive emotions including enjoyment, hope and pride in studies with university students (Daniels et al., 2009; Pekrun et al., 2006, 2009) as well as middle and high school students (Mouratidis, Vansteenkiste, Lens, & Auweele; 2009). Findings for mastery goals and negative affect have been less consistent, with some studies reporting negative relations for students across age groups (e.g., Linnenbrink, 2005) and other studies reporting no relationship (e.g., Turner, Thorpe, & Meyer, 1998). These inconsistencies are likely a result of the use of summary measures of negative affect. The few studies to consider qualitative differences between emotions (Daniels et al., 2009; Mouratidis et al., 2009; Pekrun et al., 2006, 2009) found that mastery goals were negatively related to anger and boredom, whereas relations with anxiety or shame were weak or non-significant. This shows the importance of distinguishing between types of valenced emotions, as different goals can relate to some types of positive or negative emotions but not others; the use of summated measures of affect can mask these differences.

Studies investigating the relations between performance goals and achievement emotions in students across age groups have produced a mixed yield (Huang, 2011), with some reporting a link (Turner et al., 1998) and others reporting null results (Roeser, Midgley, & Urdan, 1996). Most studies, however, have utilized a dichotomous model of goals, examining the effects of performance goals without attending to the approach-avoidance distinction. Studies that have distinguished between approach and avoidance forms of performance goals have documented their differential effects on affective experience. Sideridis (2003) found that upper elementary students' performance-approach goals were unrelated to positive and negative affect; performance-avoidance goals were unrelated to positive affect, but were positively related to negative affect. In the studies by Pekrun et al. (2006, 2009), university students' performance-approach goals were unrelated to enjoyment, but were positively related to hope and pride, whereas performance-avoidance goals were positively related to anxiety, shame, and hopelessness.

In summary, the available evidence highlights the importance of focusing on discrete emotions when investigating the relations between achievement goals and emotions in educational settings. Generally, mastery goals have shown a consistent positive link with students' positive affect and enjoyment of learning, and a negative link with anger and boredom. Performance-approach goals have been shown to be positively related to students' pride and hope, and performance-avoidance goals to their anxiety, shame, and hopelessness. This pattern of findings suggests that there are clear links between mastery goals and activity emotions (enjoyment, anger, and boredom), and between performance-based goals and outcome emotions (hope, pride, anxiety, hopelessness, and shame).

2.2. The influence of anticipated achievement feedback on goals and emotions

A number of studies have examined the impact of the type of feedback received after task engagement on achievement goal adoption and emotional experience. In contrast, almost no research has been conducted on the influence of anticipated feedback on achievement goals and emotions.

Success versus failure feedback has been shown to influence college students' achievement goals, with success promoting the adoption of mastery and performance-approach goals, and failure promoting performance-avoidance goals (Senko & Harackiewicz, 2005). In addition, a few studies have demonstrated that the type of feedback given to upper elementary and college students influenced processes associated with achievement goal foci, with feedback focused on performance improvement prompting mastery-based attributions and aims, and feedback focused on relative performance prompting performance-based attributions and aims (Butler, 1987; Steele-Johnson, Heintz, & Miller, 2008).

Most relevant to the present research, Butler (2006) conducted a study in which middle school students were instructed to expect either a) temporal evaluation, where they would be informed whether their problem solving had improved, remained stable or deteriorated; b) normative evaluation, where they would receive their percentile score in relation to other students' performance; or c) no evaluation. The results indicated that the anticipation of temporal evaluation enhanced the adoption of mastery goals, whereas the anticipation of normative evaluation enhanced performance goals. This study represents an initial attempt to investigate how feedback instructions can be manipulated to induce achievement goals in educational settings.

Regarding achievement emotions, research has shown that failure feedback is a major source of students' anxiety. Children who experienced failure in academic tasks subsequently reported anxiety when performing new tasks (Hill & Eaton, 1977). The failure feedback implied by poor grades has also been found to increase students' test anxiety across age groups (Zeidner, 1998). Research has yet to be conducted on the link between anticipated achievement feedback and students' emotional experience.

3. Theoretical framework

The present research is grounded in the model proposed by Pekrun et al. (2006, 2009) to explain the effects of achievement goals on emotions, and expands this approach to include the effects of anticipated achievement feedback on both goals and emotions. Achievement goals are conceptualized in terms of the trichotomous goal model that includes the goals most commonly endorsed by students, namely mastery, performance-approach, and performance-avoidance goals (Elliot & Church, 1997; Elliot &

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